PEMBERIAN *BIOCHAR* PLUS KOMPOS TERHADAP PERBAIKAN KIMIA ULTISOL DAN PERTUMBUHAN BIBIT KELAPA SAWIT *(Elaeis guineensis* Jacq*)* PADA TAHAP *MAIN NURSERY*

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh pemberian *biochar* sekam padi dan kompos (pelepah kelapa sawit plus tithonia) terhadap perbaikan sifat kimia Ultisol dan pertumbuhan bibit kelapa sawit (*Elaeis quineensis* Jacq) pada tahap Main Nursery. Penelitian ini dilaksanakan di Kebun Percobaan Fakultas Pertanian Universitas Andalas, Padang. Analisis tanah dan tanaman dilaksanakan di Laboratorium Tanah, Fakultas Pertanian, Universitas Andalas, Padang dan di Laboratorium Kimia Molekuler, *Faculty of Life and Environmental Sciences, Prefectural University of Hiroshima*, Japan dari bulan Januari 2017 sampai bulan Januari 2018. Rancangan yang digunakan adalah rancangan acak lengkap (RAL) yang terdiri dari 6 perlakuan (kontrol; 100 % kompos; 75 % kompos + 25 % *biochar*; 50 % kompos + 50 % *biochar*; 25 % kompos + 75 % *biochar*; 100 % *biochar)* dengan 3 ulangan. Hasil menunjukkan bahwa perlakuan 25 % kompos + 75 % *biochar* merupakan perlakuan terbaik untuk memperbaiki sifat kimia Ultisol dengan meningkatkan 0,36 unit pH; 0,18 % N; 3,13 % C organik; 21,31 ppm P; dan 12,00 cmol kg^{-1} KTK. Selain itu, pertumbuhan tanaman juga meningkat, terutama tinggi tanaman meningkat sebesar 13,32 cm; jumlah daun sebanyak 2; diameter batang sebesar 8,42 mm; serapan N sebesar 4,54 g/tanaman; P sebesar 0,71 g/tanaman; K sebesar 2,28 g/tanaman serta bobot kering sebesar 2,80 g/tanaman, jika dibandingkan dengan kontrol.

Kata kunci: biochar, kelapa sawit, kompos, ultisol

INFLUENCE OF BIOCHAR PLUS COMPOST ON IMPROVEMENT OF SOME CHEMICAL PROPERTIES OF ULTISOL AND THE GROWTH OF OIL PALM (*Elaeis guineensis* Jacq) SEEDLINGS

Abstract

This study was aimed to determine the effect of rice husk biochar and compost (oil palm leaves plus tithonia) to improve the chemical properties of Ultisol and the growth of oil palm (*Elaeis guineensis* Jacq) seedlings. This research was conducted in Experiment Station, Faculty of Agriculture, Andalas University, Padang. Soil and crop analysis was conducted at Soil Laboratory, Faculty of Agriculture, Andalas University, Padang and in the Laboratory of Molecular Chemistry, Faculty of Life and Environmental Sciences, Prefectural University of Hiroshima, Japan from January 2017 until January 2018. This experiment used a completely randomized design (CRD) consisting of 6 treatments (controls; 100% compost; 75% compost + 25% biochar; 50% compost + 50% biochar; 25% compost + 75% biochar; 100% biochar) with 3 replications. The results showed that the treatment 25% compost + 75% biochar was found to be the best treatment to improve the chemical properties of Ultisol by increasing 0.36 unit pH; 0.18 % N; 3.13% organic C; 21.31 ppm P; and 12.0 cmol kg-^{1} CEC. Furthermore, crop growth also improved, especially plant height increased by 13.32 cm; number of leaves by 2; stem diameter by 8.42 mm, N uptake by 4.54 g/plant; P by 0.71 g/plant; K by 2.28 g/plant, as well as dry matter weights by 2.80 g/plant, if it was compared to controls.

Keywords: *biochar, oil palm, compost, ultisol*